INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior

National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
Exp. Date (11/30/2010)
Form No. (10-226)

Reporting Year: 2009	**Park:** Shenandoah NP	**Select the type of permit this report addresses:** Scientific Study

Name of principal investigator or responsible official: Damon Ely	**Office Phone:** 540-577-4985
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Additional investigators or key field assistants (first name, last name, office phone, office email)

Name: Herbert Maurice Valett **Phone:** 540-231-2065 **Email:** mvalett@vt.edu

Project Title (maximum 300 characters):

Increased acidity and nitrogen availability in Appalachian streams: interactive effects on nitrogen spiraling

Park-assigned Study or Activity #:	**Park-assigned Permit #:**	**Permit Start Date:**	**Permit Expiration Date:**
SHEN-00335	SHEN-2008-SCI-0003	Feb 12, 2008	Feb 11, 2009

Scientific Study Starting Date:	**Estimated Scientific Study Ending Date:**
Jan 01, 2009	Feb 11, 2009

For either a Scientific Study or a Science Education Activity, the status is:	**For a Scientific Study that is completed, please check each of the following that applies:**
Completed	__ A final report has been provided to the park or will be provided to the park within the next two years __ Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park __ All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed

Activity Type:

Research

Subject/Discipline:

Water Quality

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):

The purpose of the study is to understand how acid deposition may impair algal and microbial-driven in-stream processes of energy flow and nitrogen cycling, impairments which become apparent at the ecosystem scale with chronic stream acidification. The effects of stream acidity on community structure are most often reported with little emphasis on functional impairment. The proposed research will be the first to investigate the role of pH and associated factors on nitrogen processing, which is a valuable stream ecosystem service that may be impaired due to decades of anthropogenically-induced acidic precipitation. Long-term watershed acidification research has taken place at Shenandoah National Park and this proposal seeks to build on the existing knowledge base by increasing our understanding of whole-system effects on stream function within the park. Please see the attached proposal for a comprehensive explanation of the overall purpose and specific objectives of the study.

Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

No activity was conducted this report year.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):	**Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):**
$0	$0

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year: